





Security R&D Trends and Overview

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Sandia National Laboratories

Briefing for:

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Sandia National Laboratories

Our primary mission: surety of the nuclear stockpile



B83 Strategic Bomb



Flight test

Responsible for more than 95 percent of weapon components





National Security Needs

DECISIONS!



Design PPS

Physical P

Detection

Exterior Sensor

Interior Sensor

Alarm

Alarm Communication & Display

Entry Control

Design I

Physical Protec

Detection

Exterior
Sensors

Interior
Sensors

Alarm Assessment

Alarm
Communication & Display

Entry Control

Delay

Access
Delay

Analyze PPS Design

Analysis/Evaluation

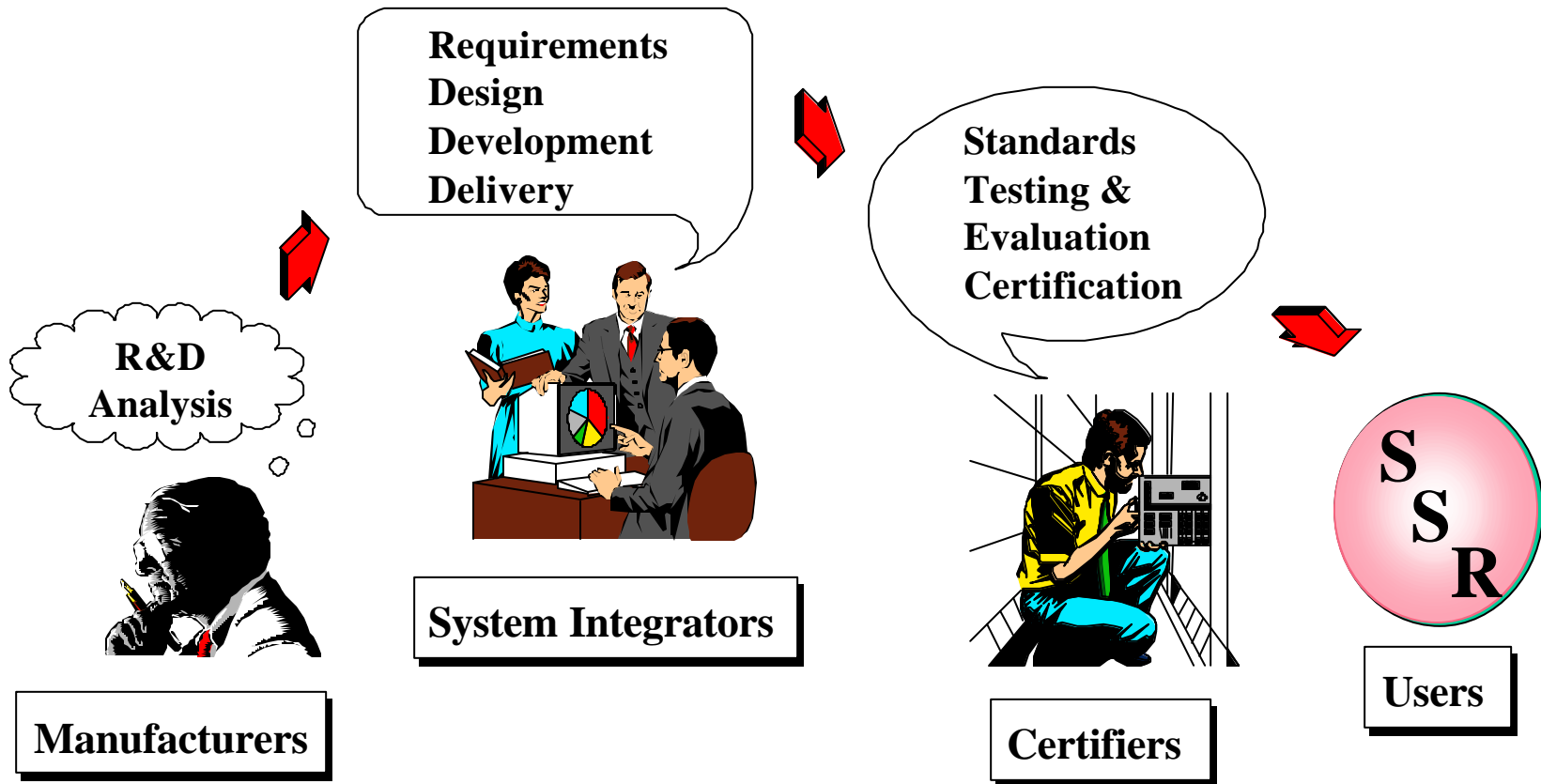
EASI Model

Adversary Sequence Diagrams

Computer Models

Risk Analysis

Delivery of “National Needs” Security Products and Services



SSR – Safe Secure Reliable (Products & Services)





National Need

Building Safety (Architecture Surety)

- **Problems:**

- Terrorist threat to building safety
- Proliferation of weapons and missiles
- Terrorist threat to information systems

- **Potential Solutions:**

- Sensors
- Modeling and simulation
- Advanced materials
- Bomb disablement technologies





National Need

Force Protection (Hazardous Missions)

Problem:

- Minimize loss of life
- Soldiers are expensive to train and maintain
- Urban environments present new threats
- Heavy combat vehicles are difficult to mobilize

Potential Solutions:

- Small, durable robots
- Advanced sensors
- Reliable power sources
- Collective behavior





National Need

Emergency Response (Surveillance Toolkit)

- Investigator Tools
- Ground Zero





National Need

Incident Response (OPERATION: AMERICA)

- Advance Bomb Disablement
 - Local
 - State
 - Federal



OPERATION

San Diego, CA September 18-22, 2000

AMERICA

An advanced training for Bomb Squad personnel throughout the United States. This advanced technology transfer is conducted by Sandia National Laboratories and sponsored by the National Institute of Justice. This first series is hosted by U.S. Navy E.O.D. Training and Evaluation Unit One and San Diego Sheriff's Department Activities include Technical Classroom Instructions, Live Range Demonstrations and Specific Technical/Tactical Issues.

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N.I.J. National Law Enforcement and Corrections Technology Center





National Need

Solutions for Protecting U.S. Infrastructures

- **Modeling of Interdependencies**
- **Indications and Warnings**
- **Consequence-Based Analysis**
- **Road Mapping**
- **Vital Issues Panels**
- **Information Surety**
- **High Surety Supervisory Control and Data Acquisition Systems**





National Need

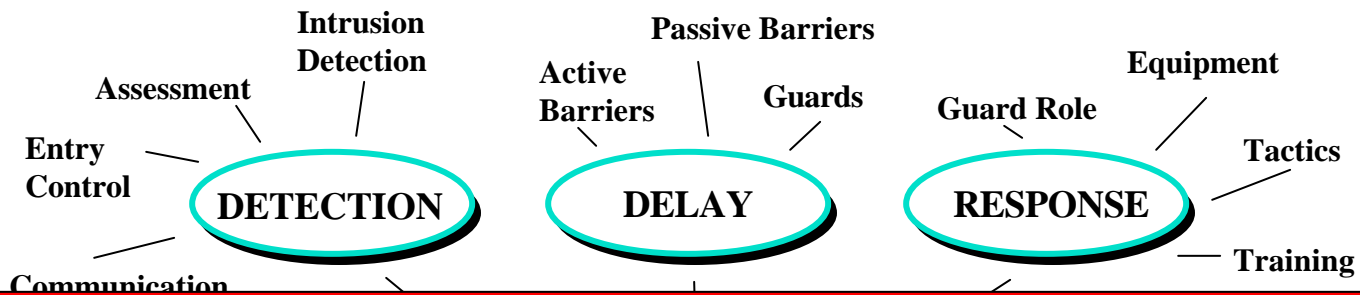
Vulnerability Assessment – Risk Management

- DoD Sites/SEA
- Chemical Plant
- US Mint
- Corrections Facilities
- BPA High Voltage Power Transmission
- EPA Water Surety
- USDA Western Regional Research Complex
- USDA/USAMRIID/CDC
 - Biosecurity
- Embassy Upgrades
- New Mexico Dept of Transportation





System Integration



Pre-Incident / Incident / Post-Incident





Summary

- Questions and Answers

